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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/665,920	09/20/2000	Belgacem Haba	RBI-008US	8524

29150 7590 06/04/2003
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EXAMINER

PHAN, THANH S

ART UNIT PAPER NUMBER

2841

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicant(s)	Applicant(s)	
	09/665,920	HABA ET AL.	
	Examiner	Art Unit	
	Thanh S Phan	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,11-21 and 23-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,11-21 and 23-38 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

The finality of the last office action is withdrawn in view of the newly discovered reference(s) to Dell et al. and Smith. Rejections based on the newly cited reference(s) follow.

Claim Objections

Claim 7 is objected to because of the following informalities: in line 18, "substrate;" should be corrected as – substrate.--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dell et al. [6,111,757].

Dell et al. disclose a memory module [figure 1] comprising a substrate [10] having first and second opposite edges; a plurality of memory devices [27] disposed on the substrate; a plurality of *substantially* linear channel conductors each having lengths that are *approximately* equal [figure 1] extending between the opposite edges, wherein each of the plurality of memory devices is coupled to one of the plurality channels; and electrical contacts [figure 1] at the opposite edges.

The examiner takes official notice that it is known to use a plurality of connections from memory to electrical contacts on a substrate. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use multiple connections to speed the memory. Dell's figure 1 was illustrative of a single connection to electrical connectors, but figure 2 shows multiple input and output lines.

Claims 2, 3, 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Dell et al. in view of Smith [6,021,048].

Dell et al. disclose the instant claimed invention except for: the substrate having first and second sides with the plurality of memory devices and channel conductors disposed on both sides thereof.

Smith discloses a memory module including a substrate [25] having a first and second sides with the plurality of memory devices and channel conductors disposed on both sides thereof.

It would have been obvious to a person having ordinary skill in the art at the time invention was made to use the memory mounting design of Smith with the substrate of Dell et al. for the purpose of increasing memory capacity.

Claims 7, 8, 11-21 and 23-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dell et al. in view of Clayton [5,708,297].

Dell et al. disclose the instant claimed invention except for: the use of multiple substrates and the interconnection therebetween.

Clayton discloses an assembly comprising a first and second substrates [32, figure 1] each having a plurality semiconductor devices [54] thereon; contacts [60]

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mounted at each end of the substrates; a plurality of channels [50] interconnected between the contacts and the semiconductor devices; and a connector [51] configured to communicatively couple the first and second channels through the contacts of the first and second substrates wherein the first connector engages contact at the end of the first substrate and engages contacts at a first of the end of the second substrate.

It would have been obvious to a person having ordinary skill in the art at the time invention was made to use multiple substrates of Clayton with the memory modules of Dell et al. for the purpose of increasing memory capacities.

Regarding claims 15-18, Dell et al. and Clayton disclose the instant claimed invention except for: the specific number of substrates used.

It would have been obvious to a person having ordinary skill in the art at the time invention was made to use additional substrates with the design of Dell et al. as modified by Clayton for the purpose of providing additional memory capacities.

Regarding claims 19-21, 23 and 31-38, Dell et al., as modified, disclose the instant claimed invention except for: the memory modules being connected to a mother board via a second connector.

Clayton discloses the multi-chip module having a second connector assembly [12].

It would have been obvious to a person having ordinary skill in the art at the time invention was made to use a second connector, as suggested by Clayton for the purpose of connecting the memory modules.

It would have been obvious to a person having ordinary skill in the art at the time invention was made to connect the second connector to a mother board for the purpose of facilitating connection of memory modules to a mother board.

Regarding claims 24-30, the claimed method steps would have been necessitated by the product structure.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tobia [6,388,886]; Ohanian [6,253,266].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh S Phan whose telephone number is 703-305-0069. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David S Martin can be reached on 703-308-3121. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7721 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

tsp
June 2, 2003



DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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